

**REMARKS/ARGUMENTS**

With entry of the instant amendment, claims 4 and 11 have been cancelled and claims 1, 8, 16, 19, and 25 have been amended. Claims 1-3, 5-10, and 12-26 are therefore pending and under examination.

Cancellation of subject matter is without prejudice to revival for prosecution in a continuation or divisional application.

The amendments to the claims add no new matter. Claims 1 and 8 have been amended to correct a typographical error in which “and” was inadvertently duplicated; and claims 16, 19, and 25 have been amended to include periods at the ends of the claims.

The objections to claims 16, 19, and 25 have been obviated by the amendments.

***Rejection under 35 U.S.C. § 112, first paragraph—written description***

Claims 1-26 are rejected as allegedly lacking proper written descriptive support in the specification. Applicants have traversed this rejection for reasons of record and as additionally noted below.

The standard for written description is that one of skill must demonstrate possession of the claimed invention. For a genus, this can be achieved by description of representative species or providing general structural characteristics in combination with function. The specification provides such description. First, applicants have disclosed any number of polymerases that can be modified using a nucleic acid binding domain as claimed. For example, the section beginning on page 9, line 25 details various polymerase families and polymerases within those family that can be used in accordance with the invention. Such polymerases have been widely characterized in the prior art both structurally and functionally. Furthermore, the specification provides specific examples of embodiments showing the wide-ranging ability of Sso7d to enhance processivity. For example, Taq is a family A polymerase. The polymerase  $\Delta$ Taq is a modified Taq polymerase that lacks the N-terminal 289 amino acids. Sso7d enhances processivity of both polymerases. The effects of Sso7d on polymerase processivity were additionally evaluated using a family B polymerase, Pfu polymerase, as an

example. Although this polymerase shares little sequence identity with Taq (*see, e.g.*, the polymerase sequences provided in the specification), Sso7d also enhanced processivity when it was fused to this family B polymerase.

Further, insofar as the rejection relates to the sequence non-specific double-stranded nucleic acid binding domain, as previously explained, the specification properly describes structural and functional characteristics of such domains for use in the invention. The claims recite a structural reference sequence that is characteristic of the genus of Sso7d proteins. In addition, the specification discloses other Sso7d homologs. For example, the specification provides specific citations of references that further describe Sso7d homologs and detailed structural analyses of Sso7d and Sac7d when bound to DNA. As explained below, the specification also describes that an additional species of the claimed genus, Sac7d, which is related to Sso7d, has effects on polymerase function that are similar to those of Sso7d.

There is no requirement that an application provide an extensive listing of species, and experimental data employing all of those species, in order for an application to sufficiently describe an invention. Applicants need only provide sufficient structural and functional information to establish that applicants were in possession of the invention.

Furthermore, the Federal Circuit has emphasized that a patent specification is written for a person of skill in the art, and such a person "comes to the patent with the knowledge of what has come before....it is unnecessary to spell out every detail of the invention in the specification; only enough must be included to convince a person of skill in the art that the inventor possessed the invention and to enable such a person to make and use the invention without undue experimentation." (*Falkner v. Inglis* 79 USPQ2d 1001, 1007 (Fed. Circ. 2006). Here, one of skill comes to the patent with all of the knowledge relating to the structure and function of polymerases and of Sso7d and its related family members. Thus, in view of the teachings in the specification and the body of knowledge in the art, the specification conveys to those skilled in the art that Applicants were in possession of the claimed invention.

In view of the foregoing, Applicants respectfully request withdrawal of the rejection.

***Rejection under 35 U.S.C. § 112, first paragraph--enablement***

Claims 1-26 are rejected as allegedly not enabled. The Examiner contends that the examples provided in the specification do not properly support the full scope of the claims. Applicants have traversed this rejection for reasons of record. In brief, as previously explained, polymerases are well known in the art, as are Sso7d and its related family members. Further, in addition to overall guidance, the specification provides working examples of polymerases that are members of widely diverse polymerase families that exhibit enhanced processivity when fused to Sso7d. The specification also provides a working example where Sac7d, which is related to Sso7d, exhibits effects on polymerase function that are similar to those of Sso7d. Applicants have additionally provided a copy of a Rule 1.132 Declaration by Peter Vander Horn originally submitted in the parent application that further explains how one of skill can select Sso7d-related proteins for use in the invention. Thus, in view of the guidance provided by application and the advanced level of skill and state of knowledge in this art, the application properly enables the claims over the scope of the genus. Applicants therefore respectfully request withdrawal of this rejection.

***Provisional obviousness-type double patenting rejection***

Claims 1-26 are provisionally rejected for obviousness-type double patenting as allegedly unpatentable over claims 11, 15-19 and 22 of co-pending application no. 10/306,827. First, it is noted that in the Final Office Action, claims 11, 15-19 and 22 of application no. 10/306,827 as characterized as being drawn to methods of increasing the yield from a polymerase reaction. Should this provisional rejection be maintained, Applicants respectfully request further clarification of how claims 11, 15-19 and 22 are being applied to the claims in the present application. However, even if this rejection was further clarified, if the provisional rejection is the only rejection remaining in this application, Applicants respectfully request that the application be allowed to issue. See, e.g., MPEP §804.I.B.1. This section of the MPEP notes that if a provisional nonstatutory obviousness-type double patenting rejection is the only

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rejection remaining in the earlier filed of the two pending applications, the provisional rejection should be withdrawn and the earlier-filed application allowed to issue without a terminal disclaimer.

**CONCLUSION**

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully Submitted,

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